

Emergency Management Of Difficult Airway In Covid-19 Patient With Carcinoma Larynx

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IMPORTANCE COVID-19 patients with airway tumors and requiring emergency airway management pose a significant challenge to anesthetists. This requires the use of advanced airway skills and instruments keeping in view the risk of cross-infection and aerosolization in covid-19 patients. We are presenting a case of 64 years old male patient with significant medical co-morbid conditions and carcinoma Larynx who presented in the emergency department of a tertiary care cancer hospital with worsening respiratory symptoms and came out to be COVID-19 positive. He was planned for mechanical ventilation and considering the anticipated difficult airway, was moved to the operating room for airway management. All the protective measures in the form of personal protective equipment (PPE) were adopted for all the dealing staff members in a designated operating room. He was successfully intubated with McGrath Video Laryngoscope and tracheotomy was avoided. This case highlights the importance of collaborative decision making, careful planning, and teamwork for the management of "Difficult Airway" in laryngeal tumor patients during the COVID-19 pandemic.

KEY WORDS Difficult Airway, Carcinoma Larynx, Covid-19

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Case Report

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COVID-19 pandemic has significant impact in clinical settings especially in patients with airway tumors requiring emergency airway management and it poses significant challenge to anesthetist. This requires use of advanced airway skills and instruments keeping in view the risk of cross infection and aerosolization to the staff members dealing these covid-19 patients. This case highlights the importance of collaborative decision making, careful planning and team work for the management of "Difficult Airway" in laryngeal tumor patients during COVID-19 pandemic.

CASE REPORT

64 years old male presented to COVID camp with history of fever and worsening of respiratory distress from last seven days. His history was notable for diabetes mellitus, ischemic heart disease and post coronary artery bypass grafting and squamous cell carcinoma of larynx for which he got radiation therapy and Cisplatin one years ago. His PCR for COVID-19 was positive. He was admitted to ICU with type-1 respiratory failure. He was put on Non-invasive ventilation for worsening of respiratory failure but he did not respond well. After discussion in multidisciplinary team, it was decided to start invasive mechanical ventilation should respiratory function deteriorate further.

Due to failure of non-invasive ventilation, the ICU team called the anesthesia team for emergency intubation.

Consultant Anesthetist on-call responded in due time as per hospital policy that all intubation in COVID-19 patients to be done by consultant anesthetist.

Detailed history, physical examination and investigations were reviewed. CT scan of neck showed marked narrowing of supra-glottic airway due to squamous cell carcinoma of larynx. This was an anticipated difficult intubation. Therefore, we formulated the plan to move the patient from ICU to operating room for endotracheal intubation and had maxillofacial surgery team standby for emergency tracheostomy in case of intubation failure.

Considering the risk of cross infection during airway instrumentation, the whole anesthetic team did proper donning with full PPE (N95 mask, surgical mask, face shield, surgical cap, water impermeable gown, shoe covers, and hazmat suit with double gloves). All emergency drugs and airway equipment were ready during transfer.

Having all standard monitors attached and BiPAP was replaced with non-rebreather face mask and FiO₂ kept at 100% in slightly head up position. Inhalation induction was started with Sevoflurane and 100% FiO₂ on spontaneously breathing patient. Sevoflurane concentration was increased gradually till we achieved MAC of 1.3. Laryngoscopy was performed with McGrath Video Laryngoscope. Supra-glottic anatomy was all distorted; epiglottis, arytenoid folds and even the vocal cords were not visible. Gum elastic bougie was introduced through the glottic opening and 6mm Micro Laryngeal Tube was railroaded over the bougie. Anesthetic

circuit was attached and ETT position confirmed on capnography. Sedation and muscle relaxation were started and patient remained hemodynamically stable throughout procedure. He was shifted back to ICU with same monitoring, intravenous propofol infusion and put on mechanical ventilator. Further, ETT position was confirmed on chest X-ray in ICU.

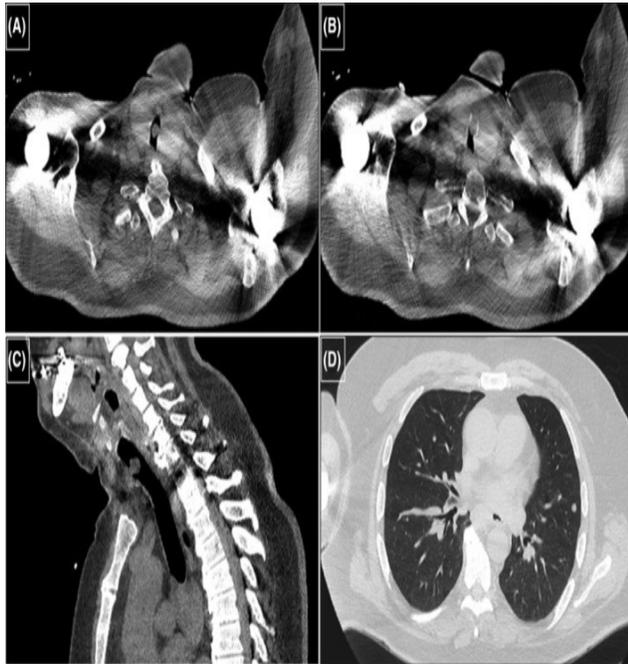


Figure 1: CT scan images of neck

DISCUSSION

In this case report, a patient with potentially difficult airway and confirmed COVID infection had to undergo emergency endotracheal intubation. This patient was already treated with radiation therapy and chemotherapy one year ago.

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Guidelines have been developed by the Association of Anesthetist, UK for managing the airway in patients with difficult airway¹.

This was a complex scenario due to laryngeal tumor treated with radiation, COVID infection, multiple co-morbidities and emergency intubation. This complex case put health care workers at greater risk of exposure to COVID infection. Tracheal intubation is a potentially high-risk procedure for the airway manager, particularly as it risks exposure to a high viral load and if transmission occurs to health care workers, this may be associated with more severe illness². For this reason, airway managers should take appropriate precautions. A systematic review of infection risk to health care workers, based on limited literature, ranked airway procedures in descending order of risk as: (1), tracheal intubation; (2), tracheostomy (and presumed for emergency front-of-neck airway (FONA)); (3), non-invasive ventilation (NIV); and (4), mask ventilation³. Tracheal intubation in critically ill patients is a high-risk procedure with physiological difficulty: around 10% of patients in this setting develop severe hypoxaemia (SpO₂ < 80%) and approximately 2% experience cardiac arrest. These figures are likely to be higher for patients with severe COVID-19 and drive some of the principles below. The first-pass success rate of tracheal intubation in the critically ill is often < 80% with up to 20% of tracheal intubations taking > two attempts⁴. Patients with head and neck malignancies are commonly treated by a combination of surgery and adjuvant chemotherapy and/or radiotherapy. The degree of airway changes due to the radiation varies from patient to patient. Radiotherapy induces edema with subsequent fibrosis or necrosis in the exposed tissues. These changes may affect the buccal mucosa, bone dentition, and larynx⁵.

Video laryngoscopy may be of help to give an indication of the severity of the airway problems if mouth opening is sufficient which was not there in our case. A video laryngoscopic assisted fiberoptic intubation would probably have warned us for the impending airway disaster⁶.

Declaration of Consent: The authors certify that they have obtained all appropriate consent required from the patient.

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Conflicts of Interest: There are no conflicts of interest

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